

# Throttle and throttle check valve

Type MG and MK

**RE 27219**

Edition: 2018-10

Replaces: 01.09



H7793

- ▶ Size 6 ... 30
- ▶ Component series 1X
- ▶ Maximum operating pressure 315 bar
- ▶ Maximum flow 400 l/min

## Features

- ▶ For pipeline installation
- ▶ Depending on viscosity and pressure
- ▶ Type MG: throttling in both directions of flow
- ▶ Type MK: throttling in one direction of flow, free flow in opposite direction
- ▶ Corrosion-protected design

## Contents

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Ordering code

|    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|
| 01 | 02 | 03 | 04 | 05 | 06 | 07 |
|    |    | G  | 1X | /  |    | *  |


|    |  |    |
|----|--|----|
| 01 | Throttle valve   | MG |
|    | Throttle check valve   | MK |
| 02 | Size 6   | 6  |
|    | Size 8   | 8  |
|    | Size 10  | 10 |
|    | Size 15  | 15 |
|    | Size 20  | 20 |
|    | Size 25  | 25 |
|    | Size 30  | 30 |
| 03 | Threaded connection  | G  |
| 04 | Component series 10 ... 19 (10 ... 19: unchanged installation and connection dimensions) | 1X |

Corrosion resistance (outside)

|    |  |         |
|----|--|---------|
| 05 | None (valve housing primed)  | no code |
|    | Improved corrosion protection (240 h salt spray test according to EN ISO 9227) | J3      |
|    | Improved corrosion protection (720 h salt spray test according to EN ISO 9227) | J5      |

Seal material

|    |  |         |
|----|--|---------|
| 06 | NBR seals  | no code |
|    | FKM seals  | V       |
|    | Observe compatibility of seals with hydraulic fluid used. (Other seals upon request) |         |
| 07 | Further details in the plain text  | *       |

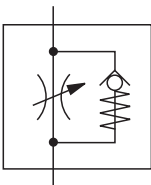
-  **Notes:**
- For valve types for use in potentially explosive areas, refer to data sheet 07011.
  - Preferred types and standard units are contained in the EPS (standard price list).

Symbols

Type MG



Type MK

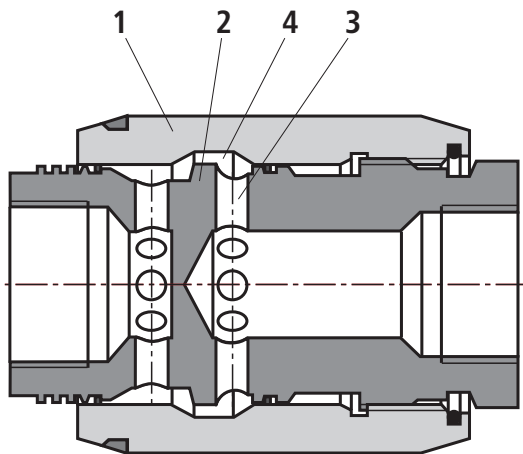


## Function, section

The valve types MG and MK are pressure- and viscosity-dependent throttle and throttle check valves.

### Type MG (throttle valve)

Throttling is realized in both directions of flow. The hydraulic fluid is directed to the throttling point (4) via lateral bores (3). It is formed between the housing (2) and the adjustable sleeve (1). By rotating the sleeve (1), the cross-section of the throttling point (4) can be continuously adjusted.

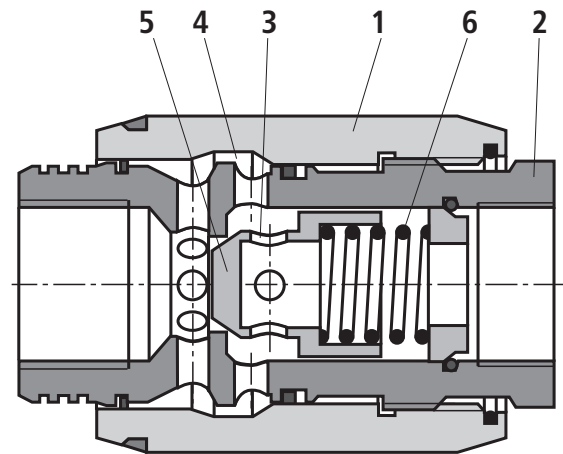


**Type MG**

### Type MK (throttle check valve)

If the valve is passed by the flow in throttling direction, the spring (6) and the hydraulic fluid push the poppet (5) on the seat and the connection is blocked. Via lateral bores (3), the hydraulic fluid flow is directed to the throttling point (4) between the housing (2) and the adjustable sleeve (1).

In the opposite direction, the pressure acts on the front face of the poppet (5), lifts it from the seat and releases the flow. The hydraulic fluid flow is released through the valve without throttling. In this process, simultaneous passing of a part of the hydraulic fluid via the annular gap leads to the desired effect of self-cleaning.



**Type MK**

**Technical data**

(for applications outside these values, please consult us!)

| General                   |    |  |     |     |     |     |     |     |
|---------------------------|----|--|-----|-----|-----|-----|-----|-----|
| Size                      |    | 6  | 8   | 10  | 15  | 20  | 25  | 30  |
| Weight                    | kg | 0.3  | 0.4 | 0.7 | 1.1 | 1.9 | 3.2 | 4.1 |
| Installation position     |    | any  |     |     |     |     |     |     |
| Ambient temperature range | °C | -30 ... +80 (NBR seals)<br>-20 ... +80 (FKM seals) |     |     |     |     |     |     |

| hydraulic  |                         |                              |  |     |     |     |     |     |     |
|--|-------------------------|------------------------------|--|-----|-----|-----|-----|-----|-----|
| Maximum operating pressure   |                         | bar                          | 315  |     |     |     |     |     |     |
| Cracking pressure (type MK)  |                         | bar                          | 0.5  |     |     |     |     |     |     |
| Maximum flow   |                         | l/min                        | see characteristic curves on page 5                |     |     |     |     |     |     |
| Maximum leakage <sup>1)</sup>  | ► Standard              | l/min                        | 0.8  | 1.0 | 2.0 | 2.0 | 3.0 | 4.0 | 5.5 |
|  | ► Version "J3" and "J5" | l/min                        | 1.6  | 1.6 | 2.5 | 3.2 | 3.5 | 7.0 | 7.7 |
| Hydraulic fluid  |                         | see table below              |  |     |     |     |     |     |     |
| Hydraulic fluid temperature range  |                         | °C                           | -30 ... +80 (NBR seals)<br>-20 ... +80 (FKM seals) |     |     |     |     |     |     |
| Viscosity range  |                         | mm²/s                        | 10 ... 800   |     |     |     |     |     |     |
| Maximum admissible degree of contamination of the hydraulic fluid; cleanliness class according to ISO 4406 (c) |                         | Class 20/18/15 <sup>2)</sup> |  |     |     |     |     |     |     |
| Load cycles  | ► Size 6 ... 15         | 10 Mio.                      |  |     |     |     |     |     |     |
|  | ► Size 20 ... 30        | 2 Mio.                       |  |     |     |     |     |     |     |

| Hydraulic fluid              | Classification                   | Suitable Sealing materials   | Standards | Data sheet |
|------------------------------|----------------------------------|--|-----------|------------|
| Mineral oils                 | HL, HLP                          | NBR, FKM   | DIN 51524 | 90220      |
| Bio-degradable <sup>3)</sup> | ► Insoluble in water             | HETG   | ISO 15380 | 90221      |
|                              |                                  | HEES   |           |            |
|                              | ► Soluble in water               | HEPG   | ISO 15380 |            |
| Flame-resistant              | ► Water-free                     | HFDU (glycol base)   | ISO 12922 | 90222      |
|                              |                                  | HFDU (ester base) <sup>3)</sup>  |           |            |
|                              |                                  | HFDR   |           |            |
|                              | ► Containing water <sup>3)</sup> | HFC (Fuchs Hydrotherm 46M, Fuchs Renosafe 500, Petrofer Ultra Safe 620, Houghton Houghto Safe 620, Union Carbide HP5046) | ISO 12922 | 90223      |

**Important information on hydraulic fluids:**

- For further information and data on the use of other hydraulic fluids, please refer to the data sheets above or contact us.
- There may be limitations regarding the technical valve data (temperature, pressure range, life cycle, maintenance intervals, etc.).
- The ignition temperature of the hydraulic fluid used must be 50 K higher than the maximum surface temperature.

**► Flame-resistant – containing water:**

- Maximum pressure differential 210 bar, otherwise, increased cavitation erosion
- Life cycle as compared to operation with mineral oil HL, HLP 30 ... 100%
- Maximum hydraulic fluid temperature 60 °C

- **Bio-degradable and flame-resistant:** If this hydraulic fluid is used, small amounts of dissolved zinc may get into the hydraulic system.

<sup>1)</sup> If valve is completely closed

<sup>2)</sup> The cleanliness classes specified for the components must be adhered to in hydraulic systems. Effective filtration prevents faults and simultaneously increases the life cycle of the components.

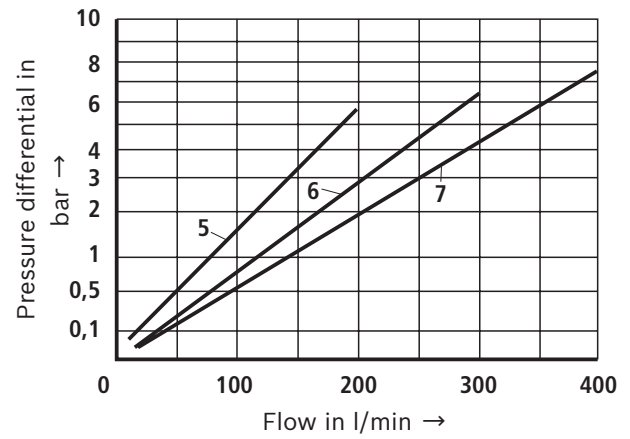
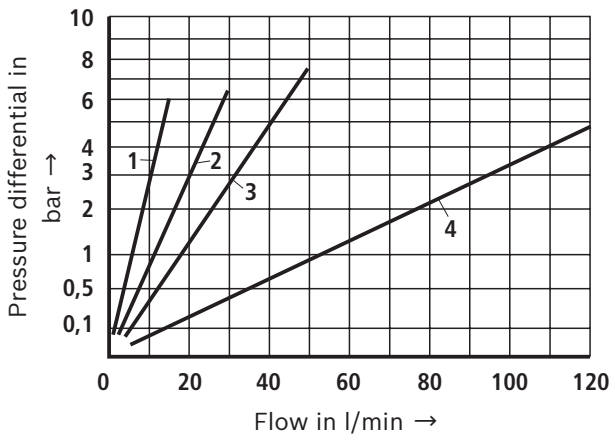
Available filters can be found at [www.boschrexroth.com/filter](http://www.boschrexroth.com/filter).

<sup>3)</sup> Not recommended for corrosion-protected versions "J3" and "J5"

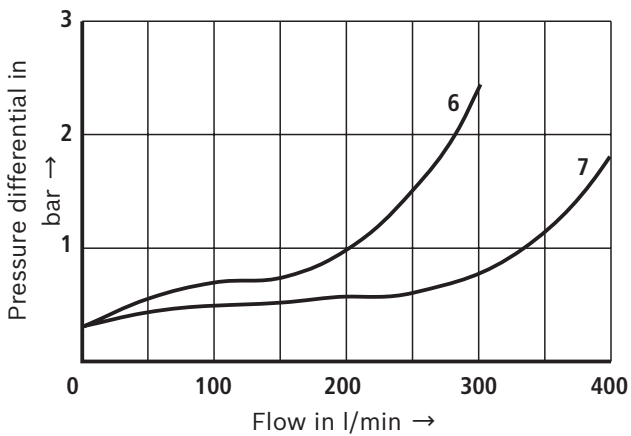
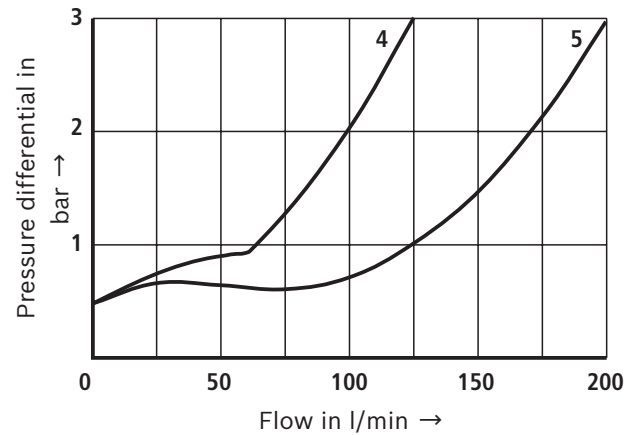
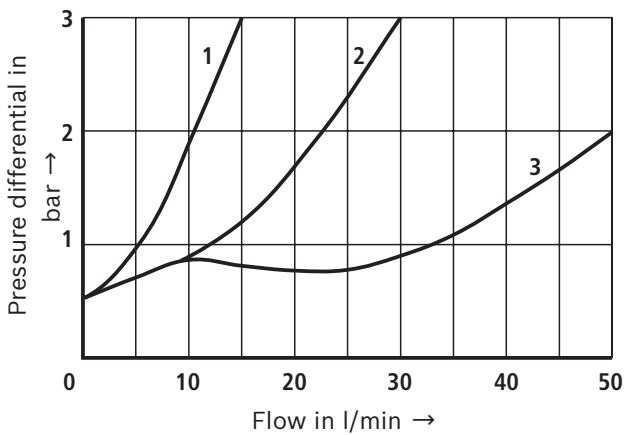
## Characteristic curves

(measured with HLP46,  $\vartheta_{oil} = 40 \pm 5 \text{ }^{\circ}\text{C}$ )

**$\Delta p$ - $q_v$  characteristic curves** via open throttle (type MG and MK)



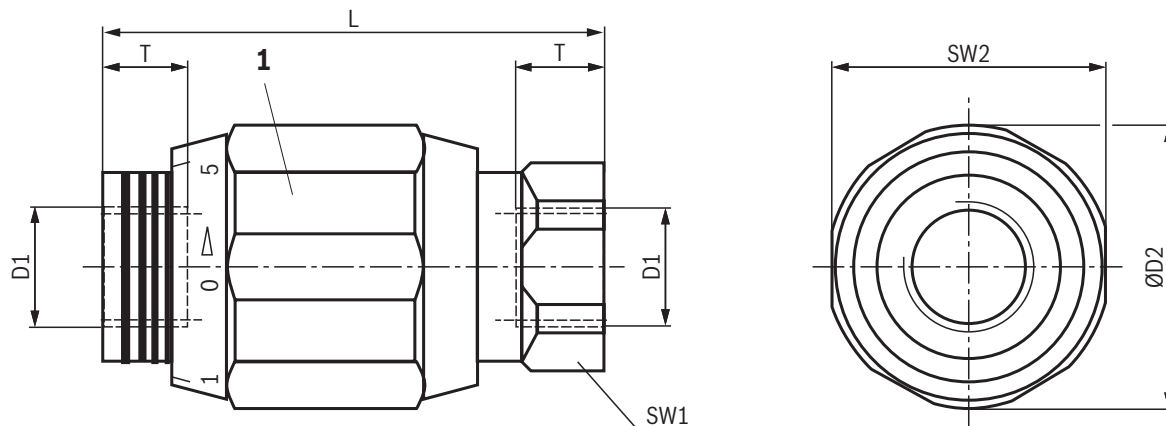
**$\Delta p$ - $q_v$  characteristic curves** via opened check valve at closed throttle (type MK)



- 1 NG6
- 2 NG8
- 3 NG10
- 4 NG15
- 5 NG20
- 6 NG25
- 7 NG30

**Dimensions**

(dimensions in mm)

**1** Valve marking on key face

| NG | D1     | ØD2 | L   | SW1 | SW2 | T  |
|----|--------|-----|-----|-----|-----|----|
| 6  | G1/4   | 34  | 65  | 22  | 32  | 12 |
| 8  | G3/8   | 38  | 65  | 24  | 36  | 12 |
| 10 | G1/2   | 48  | 80  | 30  | 46  | 14 |
| 15 | G3/4   | 58  | 100 | 41  | 55  | 16 |
| 20 | G1     | 72  | 110 | 46  | 70  | 18 |
| 25 | G1 1/4 | 87  | 130 | 55  | 85  | 20 |
| 30 | G1 1/2 | 93  | 150 | 60  | 90  | 22 |

**Further information**

- ▶ Hydraulic fluids on mineral oil basis
- ▶ Environmentally compatible hydraulic fluids
- ▶ Flame-resistant, water-free hydraulic fluids
- ▶ Flame-resistant hydraulic fluids - containing water (HFAE, HFAS, HFB, HFC)
- ▶ Hydraulic valves for industrial applications
- ▶ General product information on hydraulic products
- ▶ Assembly, commissioning and maintenance of industrial valves
- ▶ Use of non-electrical hydraulic components in explosive atmospheres (ATEX)
- ▶ Selection of filters
- ▶ Information on available spare parts

Data sheet 90220

Data sheet 90221

Data sheet 90222

Data sheet 90223

Operating instructions 07600-B

Data sheet 07008

Data sheet 07300

Data sheet 07011

[www.boschrexroth.com/filter](http://www.boschrexroth.com/filter)[www.boschrexroth.com/spc](http://www.boschrexroth.com/spc)